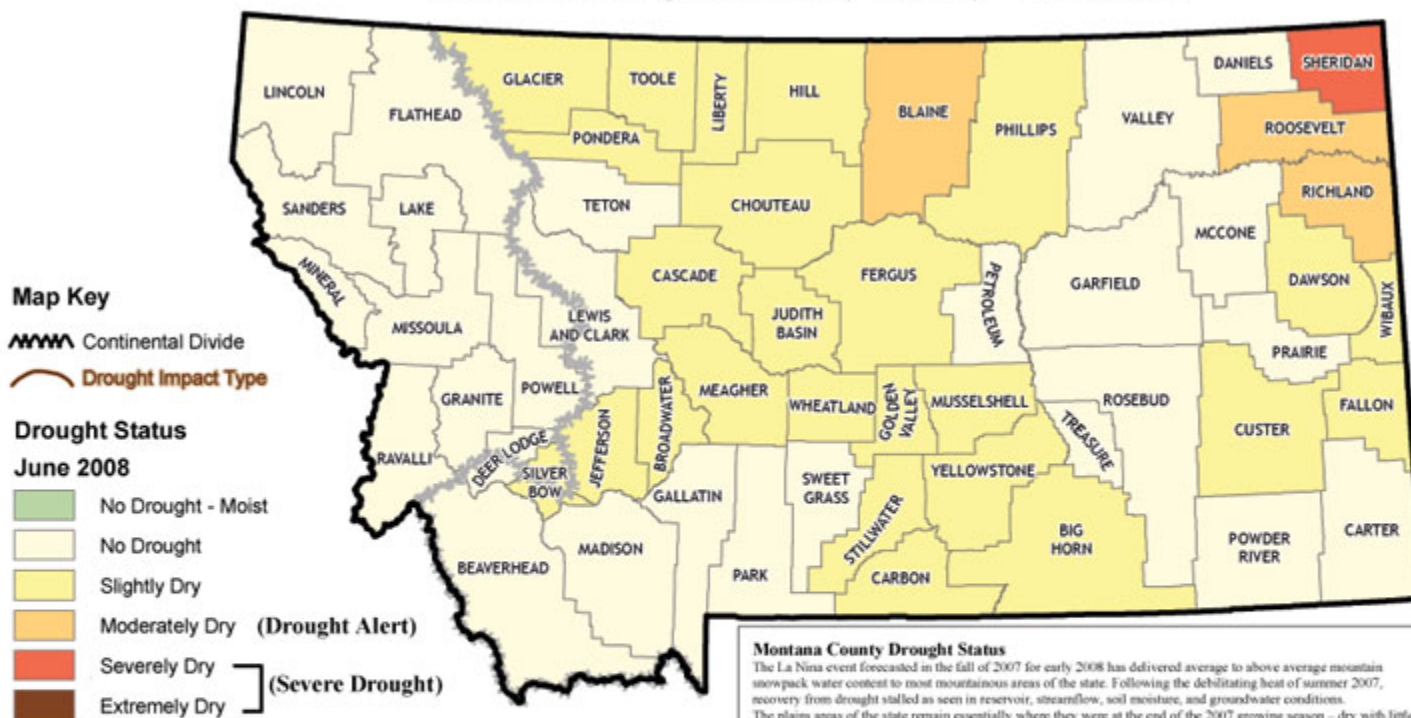


Montana Drought Status - June

Montana Drought Status by County - June, 2008



Drought Impact Types - A = Agricultural - Soil Moisture, Range conditions
H = Hydrological - Water Supplies, Streamflow, Groundwater

Drought Alert - Governor's Drought Advisory Committee strongly encourages local officials to convene local drought committees.

Severe Drought - Local officials should have local drought planning efforts underway or should reconvene the local drought committee at the earliest opportunity.

For recommended responses, see the Montana Drought Plan.



<http://nris.mt.gov/drought/>



<http://drought.mt.gov/>

Montana County Drought Status

The La Nina event forecasted in the fall of 2007 for early 2008 has delivered average to above average mountain snowpack water content to most mountainous areas of the state. Following the debilitating heat of summer 2007, recovery from drought stalled as seen in reservoir, streamflow, soil moisture, and groundwater conditions. The plain areas of the state remain essentially where they were at the end of the 2007 growing season - dry with little snow cover. The period from December through March brings only about two to three inches in a normal year to plains and valley elevations and spring storms will be important to recovery in these areas. But the water supply outlook looks very favorable as of mid-February for surface water dependent valleys on both sides of the Continental Divide as the mountains reach the two-third mark of the snow water accumulation period for the water year. The concern at this time is whether the state will experience an early snowmelt of mountain snowpack, as in 2007, or a normal runoff period from mid-May through June.

The Governor's Drought Advisory Committee assesses water supply and moisture conditions on a monthly basis to determine drought status for each county of the state. The drought status map is used primarily to promote awareness of drought and to alert Montanans to impending drought conditions so they may respond appropriately.

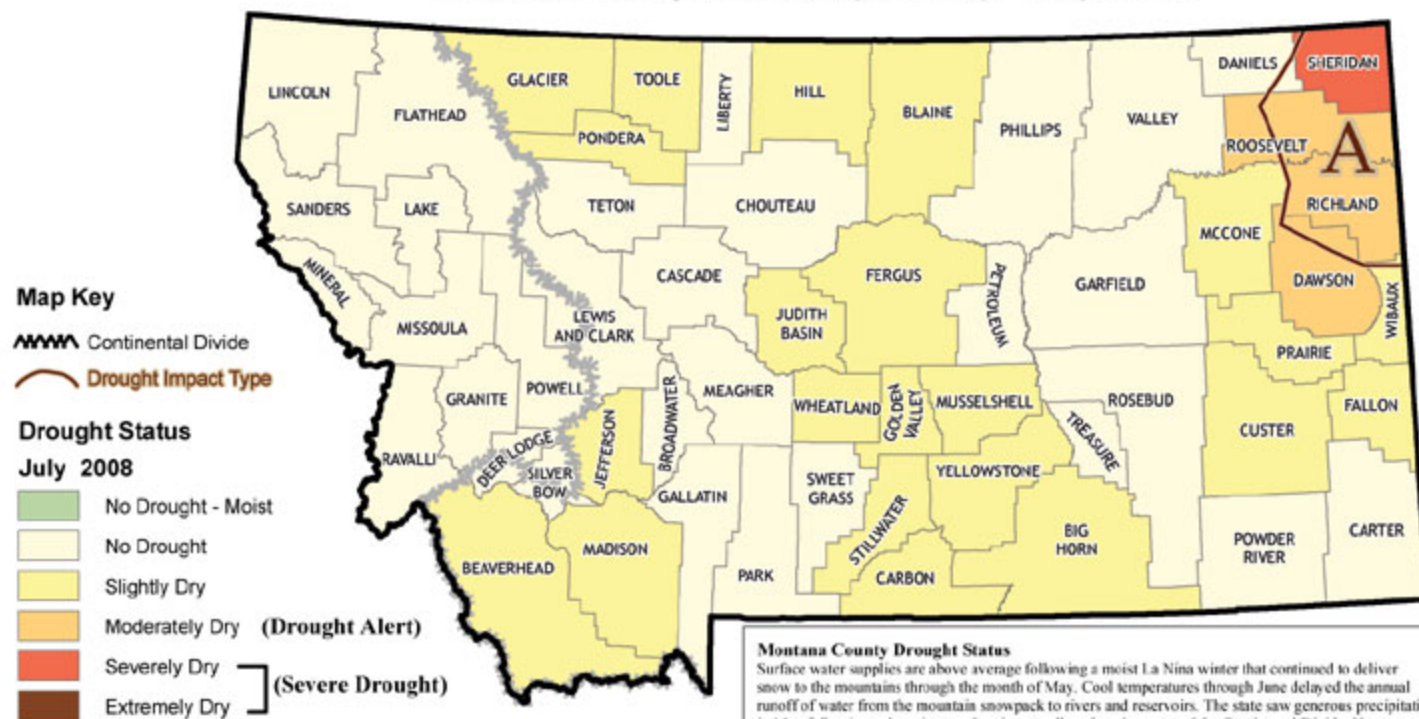
Drought Alert: Governor's Drought Advisory Committee strongly encourages watershed groups and county drought committees to convene and undertake planning for drought.

Severe Drought: Local officials should have local drought planning underway or should convene local drought planning at the earliest opportunity.

For information about how the drought status maps are determined or to learn more about recommended responses to drought see the Montana Drought Response Plan. (<http://nris.state.mt.us/drought/committee/DroughtP07.pdf>)

Montana Drought Status - July

Montana Drought Status by County - July, 2008



Drought Alert - Governor's Drought Advisory Committee strongly encourages local officials to convene local drought committees.

Severe Drought - Local officials should have local drought planning efforts underway or should reconvene the local drought committee at the earliest opportunity.

For recommended responses, see the Montana Drought Plan.



<http://nris.mt.gov/drought/>



<http://drought.mt.gov/>

Montana County Drought Status

Surface water supplies are above average following a moist La Nina winter that continued to deliver snow to the mountains through the month of May. Cool temperatures through June delayed the annual runoff of water from the mountain snowpack to rivers and reservoirs. The state saw generous precipitation in May following a dry winter and spring at valley elevations east of the Continental Divide. However, soil moisture and livestock water remain in short supply in several Northeast counties where crop development was further hindered by unseasonably cool temperatures. The La Nina has weakened bringing ENSO into a neutral state for the time being.

The Governor's Drought Advisory Committee assesses water supply and moisture conditions on a monthly basis to determine drought status for each county of the state. The drought status map is used primarily to promote awareness of drought and to alert Montanans to impending drought conditions so they may respond appropriately.

Drought Alert: Governor's Drought Advisory Committee strongly encourages watershed groups and county drought committees to convene and undertake planning for drought.

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Governor's Drought Advisory Committee Meeting

July 17, 2008

National Weather Service

Gina Loss

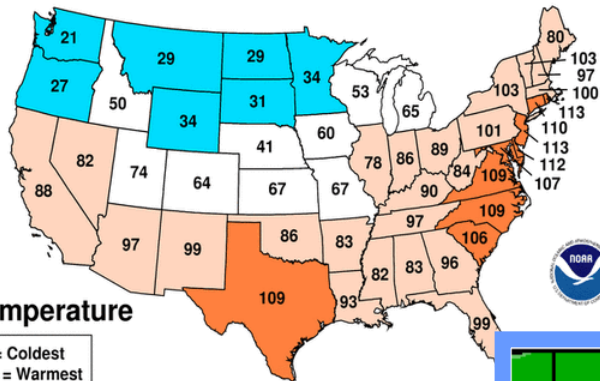
June 2008

Temperature Ranking and Departure from Average Temperature

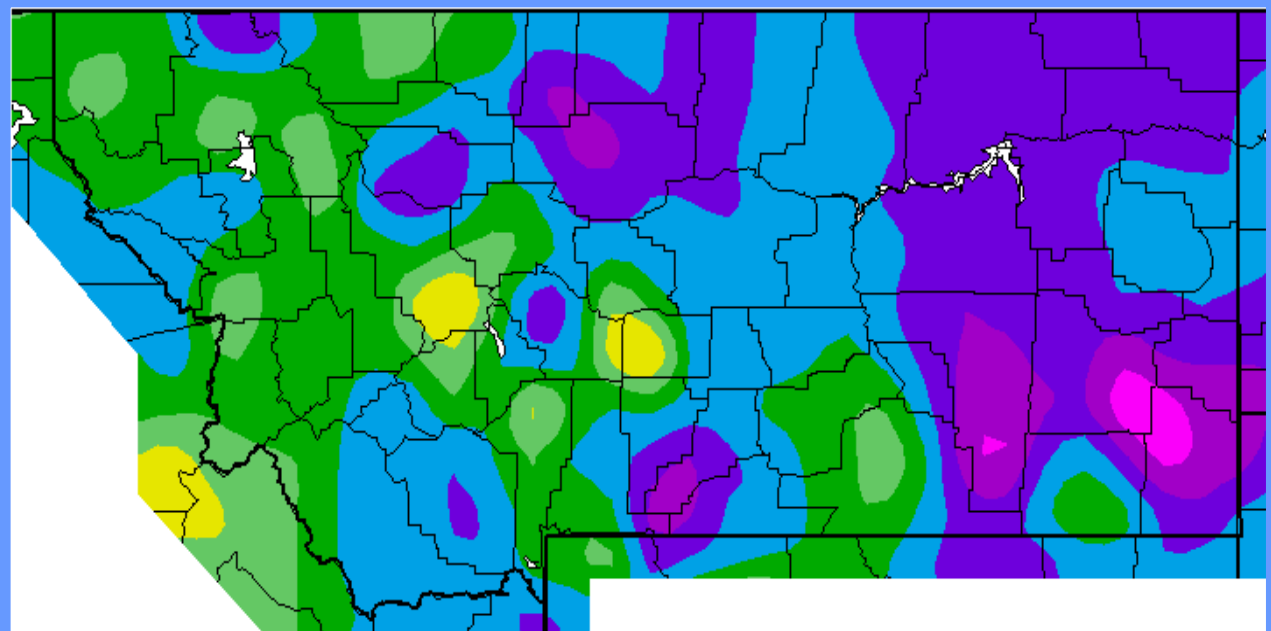
29th coldest

June 2008 Statewide Ranks

National Climatic Data Center/NESDIS/NOAA

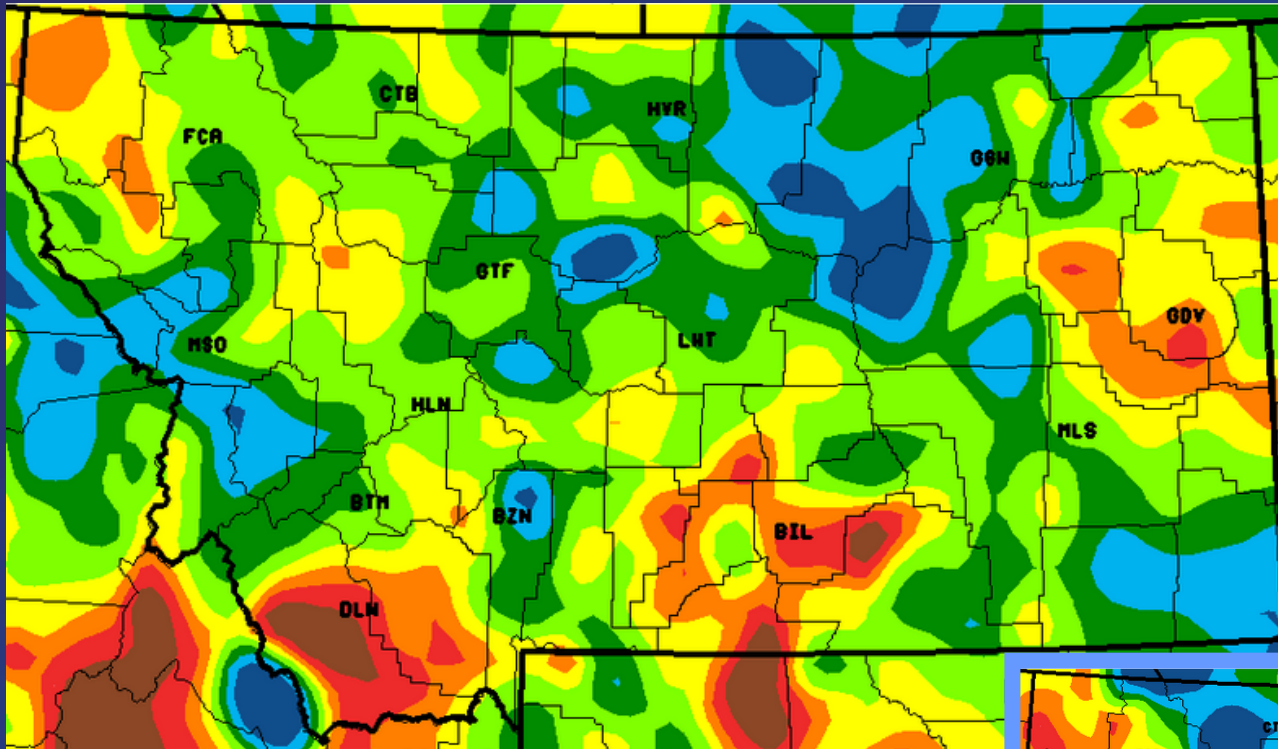


- Only isolated areas near normal
- Most of Montana 2 to 5 degrees below normal



June 2008

Percent of Normal Precipitation



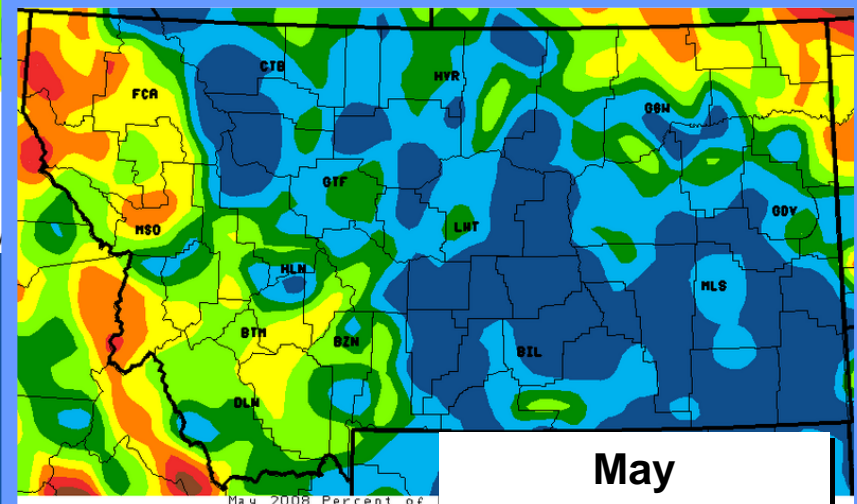
- Large portion of the state near normal
- Areas northwest, southwest, south central and east much below normal
 - Large portion of Beaverhead County less than 20% of normal
- Areas west, north central and southeast above normal

June 2008 Percent of Normal Precipitation
Period of Normal: 1971-2000

20 40 60 85 115 150 200

NOTE: Data used to generate this image are
PROVISIONAL AND SUBJECT TO CHANGE.

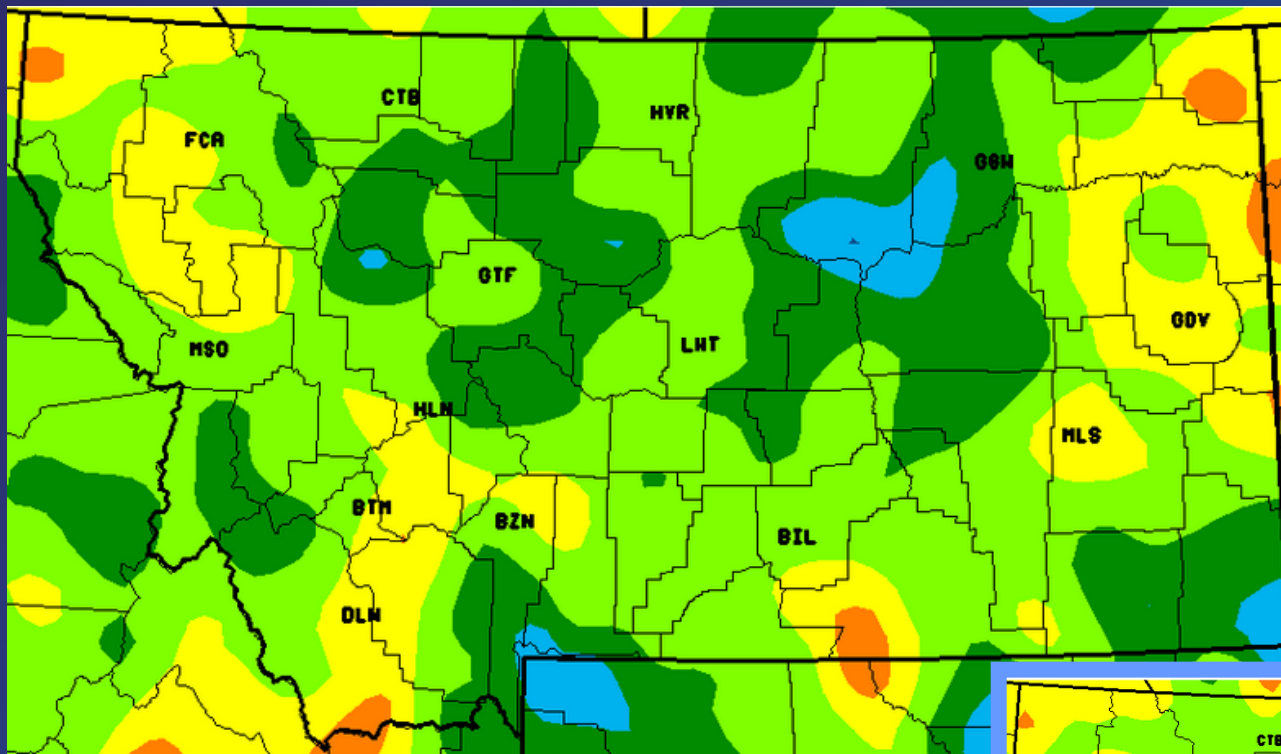
<http://www>



May

Percent of Normal Precipitation

Water Year 2008



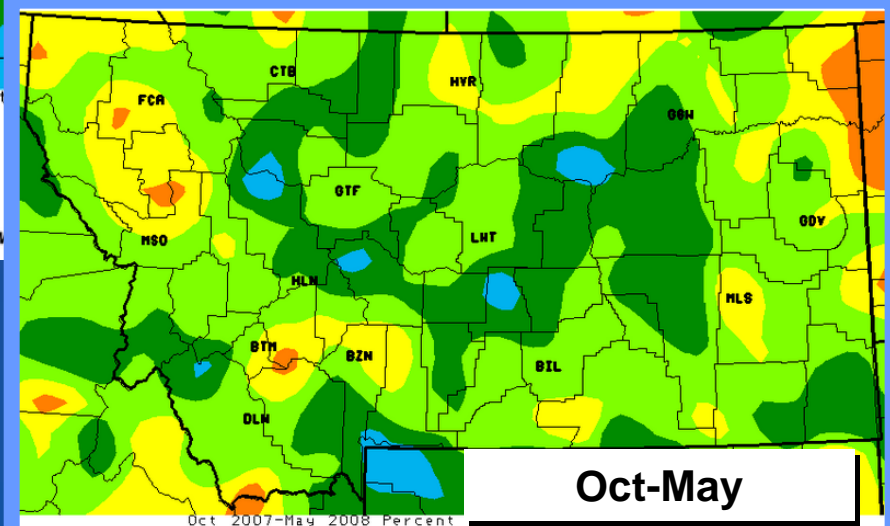
Oct 2007-Jun 2008 Percent of Normal Precipitation
Period of Normal: 1971-2000

20 40 60 85 115 150 200

NOTE: Data used to generate this image are
PROVISIONAL AND SUBJECT TO CHANGE.

<http://www.spc.noaa.gov>

- October – June
- Most of state averaging near normal
- Areas west, southwest, south central and east dropping below normal
- Area in north central above normal

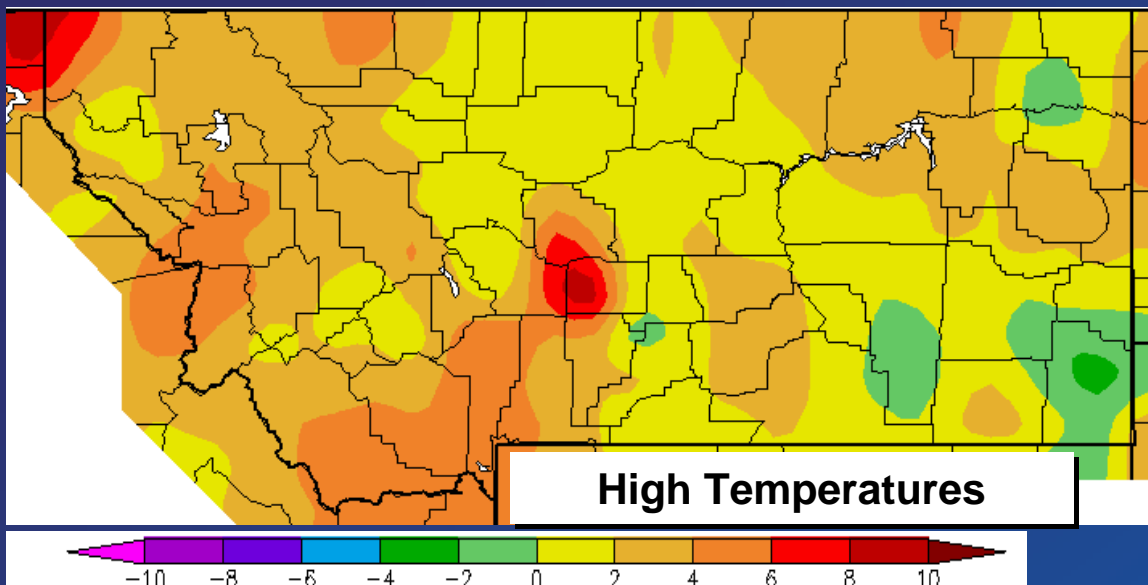


Oct-May

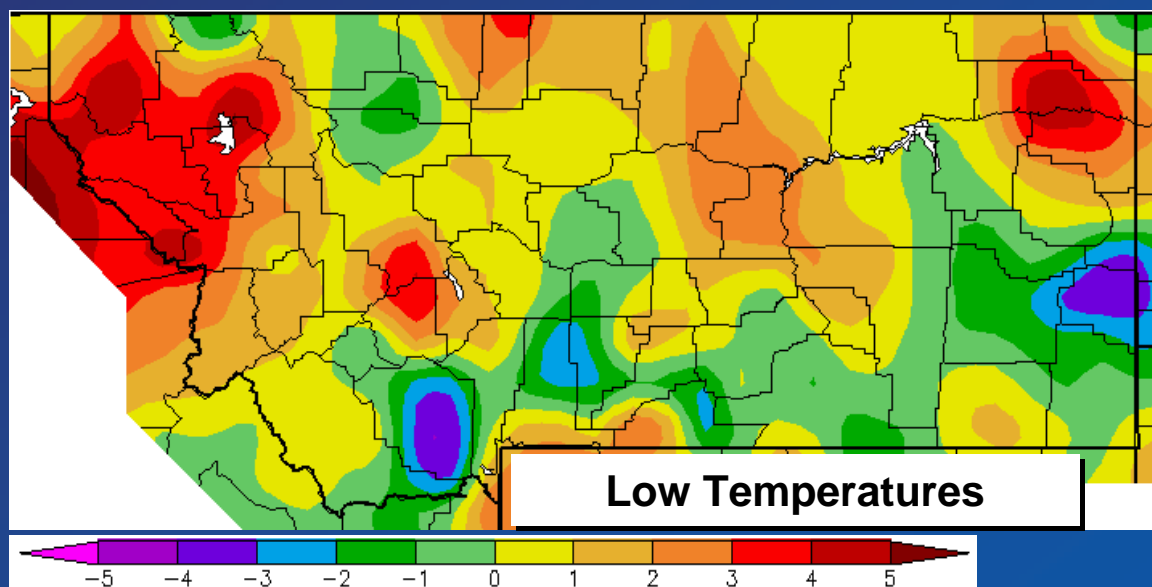
Oct 2007-May 2008 Percent

Temperature Anomalies

July 1 - 15

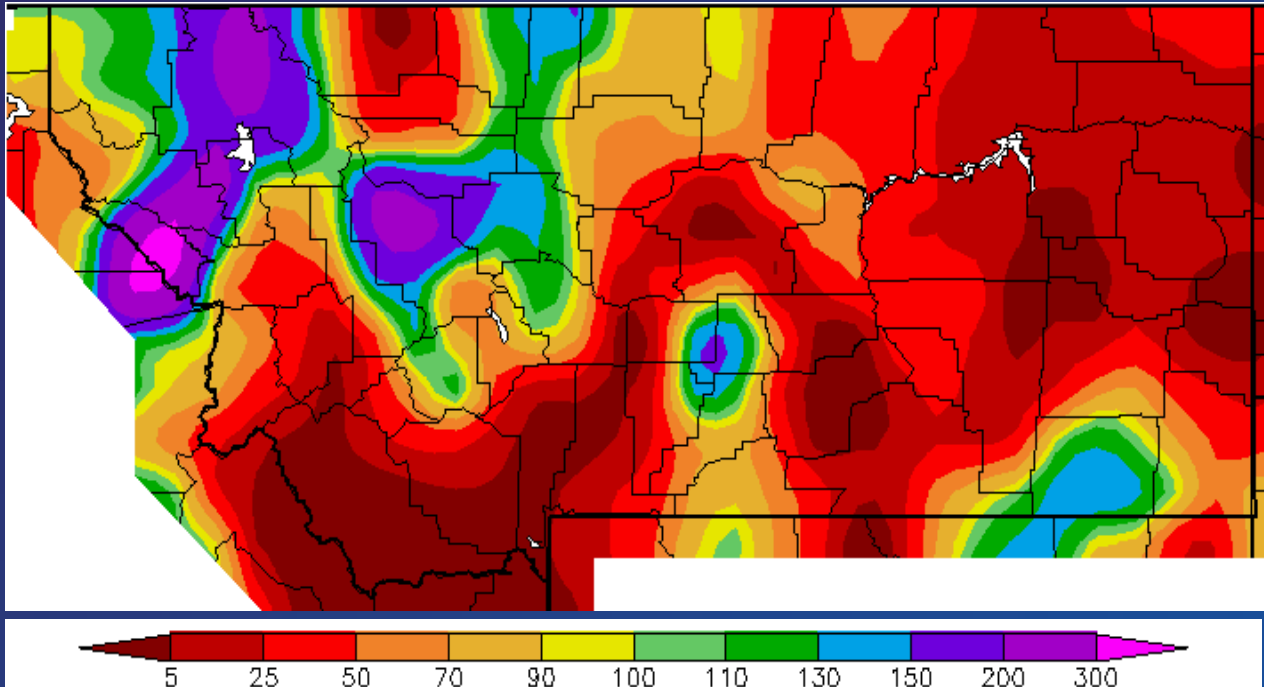


- Temperatures averaging near to slightly above normal
- Highs and lows mostly 0 to 4 degrees above normal
 - *Isolated areas with lows 1 to 4 degrees below normal*



Percent of Average Precipitation

July 1 - 15



- Dry band southwest to central/south central to northeast and east
- Relatively small areas near to above normal
 - *These due in large part to severe storms first week of July*

Precipitation Totals

July and Water Year 2008

	ACTUAL PCPN	JULY 1 - 16 NRML PCPN	+/- NRML	% OF NRML	WATER YEAR TO DATE ACTUAL PCPN	NRML PCPN	+/- NRML	% OF NRML
WESTERN MONTANA								
BUTTE	0.60	0.84	-0.24	71	7.99	9.70	-1.71	82
KALISPELL	1.53	0.81	0.72	189	10.76	14.16	-3.40	76
MISSOULA	0.27	0.63	-0.36	43	9.21	9.62	-0.41	96
MULLAN PASS	0.05	0.77	-0.72	6	33.96	42.20	-8.24	80
SOUTHWEST MONTANA								
BIG SKY	0.06	0.86	-0.80	7	22.60	16.46	6.14	137
BOULDER	0.44	0.80	-0.36	55	7.01	8.31	-1.30	84
BELGRADE FIELD	0.08	0.74	-0.66	11	12.11	11.69	0.42	104
BOZEMAN MSU	0.03	0.84	-0.81	4	18.73	15.41	3.32	122
DILLON AIRPORT	0.05	0.67	-0.62	7	6.13	7.42	-1.29	83
ENNIS	0.06	0.77	-0.71	8	12.24	10.43	1.81	117
HELENA	0.33	0.72	-0.39	46	7.59	8.29	-0.70	92
ROGERS PASS 9 NNE	1.63	0.95	0.68	172	13.52	13.58	-0.06	100
TOWNSEND	0.30	0.76	-0.46	39	6.67	7.75	-1.08	86
WISDOM	0.00	0.69	-0.69	0	9.23	9.20	0.03	100

Precipitation Totals

July and Water Year 2008

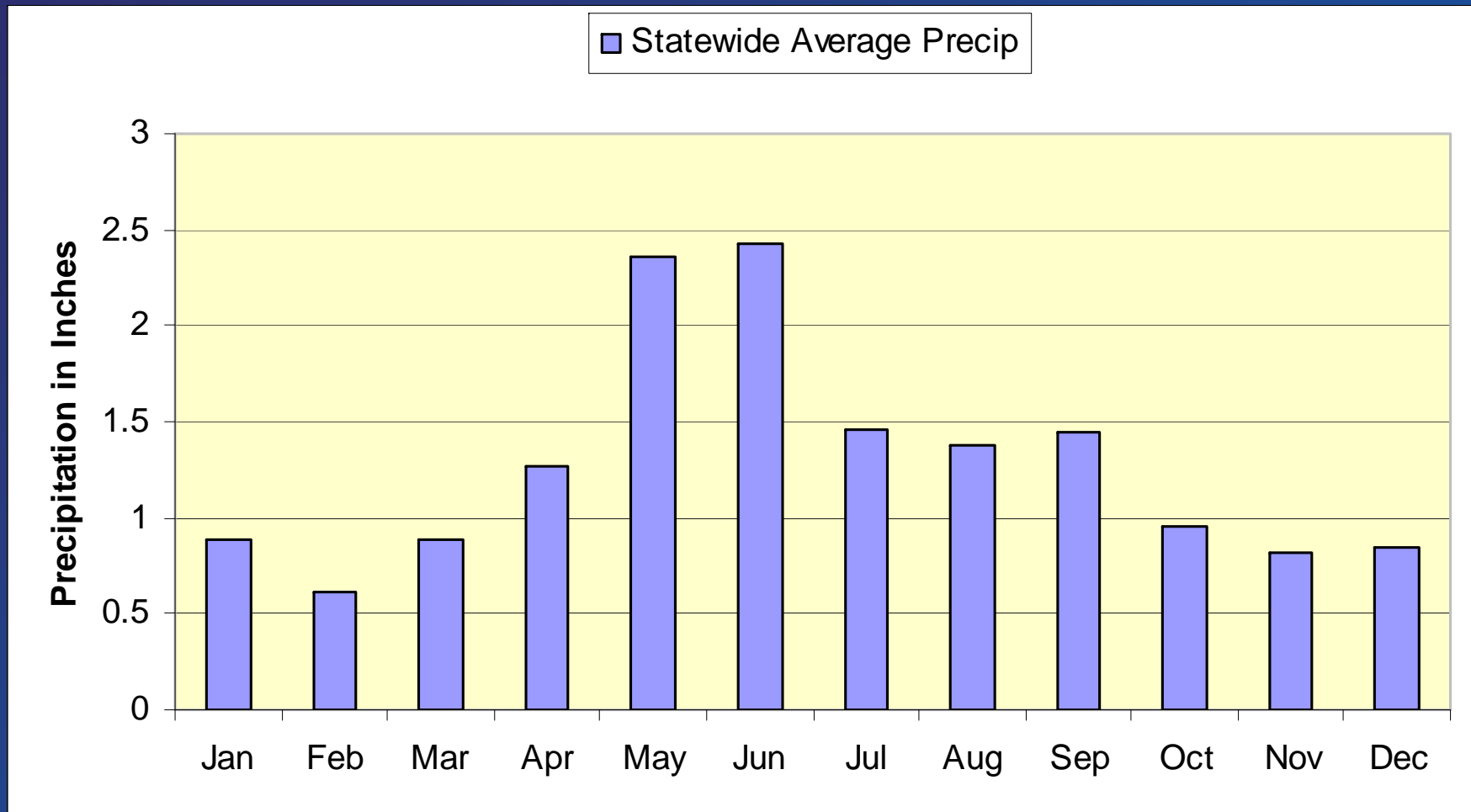
	JULY 1 - 16				WATER YEAR TO DATE			
	ACTUAL PCPN	NRML PCPN	+/- NRML	% OF NRML	ACTUAL PCPN	NRML PCPN	+/- NRML	% OF NRML
CENTRAL MONTANA								
BILLINGS	0.14	0.74	-0.60	19	9.51	11.99	-2.48	79
CASCADE 20 SSE	0.80	0.91	-0.11	88	13.30	10.80	2.50	123
CHESTER	0.00	0.86	-0.86	0	4.32	7.94	-3.62	54
CHINOOK	0.85	0.93	-0.08	91	11.03	9.56	1.47	115
CHOTEAU	0.53	0.71	-0.18	75	12.15	7.64	4.51	159
CONRAD	0.00	0.70	-0.70	0	7.04	9.08	-2.04	78
CUT BANK	0.15	0.86	-0.71	17	8.89	8.90	-0.01	100
FORT ASSINNIBOINE	0.81	1.00	-0.19	81	8.87	9.69	-0.82	92
FORT BENTON	0.29	0.74	-0.45	39	3.32	10.35	-7.03	32
GOLD BUTTE 7 N	1.00	0.83	0.17	120	11.05	9.85	1.20	112
GRASS RANGE	0.05	1.16	-1.11	4	14.60	12.75	1.85	115
GREAT FALLS	1.00	0.82	0.18	122	12.55	11.43	1.12	110
HARLEM	0.18	1.05	-0.87	17	7.71	8.40	-0.69	92
HAVRE	0.62	0.83	-0.21	75	8.00	8.55	-0.55	94
LIVINGSTON	0.22	0.88	-0.66	25	11.19	12.22	-1.03	92
LEWISTOWN	0.19	1.18	-0.99	16	12.84	13.66	-0.82	94
MARTINSDALE 3 NNW	0.05	1.01	-0.96	5	9.98	9.97	0.01	100
MILLEGAN	0.55	1.22	-0.67	45	17.52	14.02	3.50	125
NEIHART 8 NNW	0.27	1.25	-0.98	22	18.76	16.27	2.49	115
SHELBY	0.14	0.77	-0.63	18	6.50	7.07	-0.57	92
STANFORD	0.31	1.19	-0.88	26	11.90	12.87	-0.97	92
VALIER	0.22	0.75	-0.53	29	8.45	8.93	-0.48	95
WHITE SULPHUR SPRGS	0.39	0.87	-0.48	45	9.37	10.14	-0.77	92
EASTERN MONTANA								
GLASGOW	0.14	1.01	-0.87	14	10.66	8.25	2.41	129
MILES CITY	0.09	0.94	-0.85	10	6.88	10.44	-3.56	66

Statewide Average Precipitation

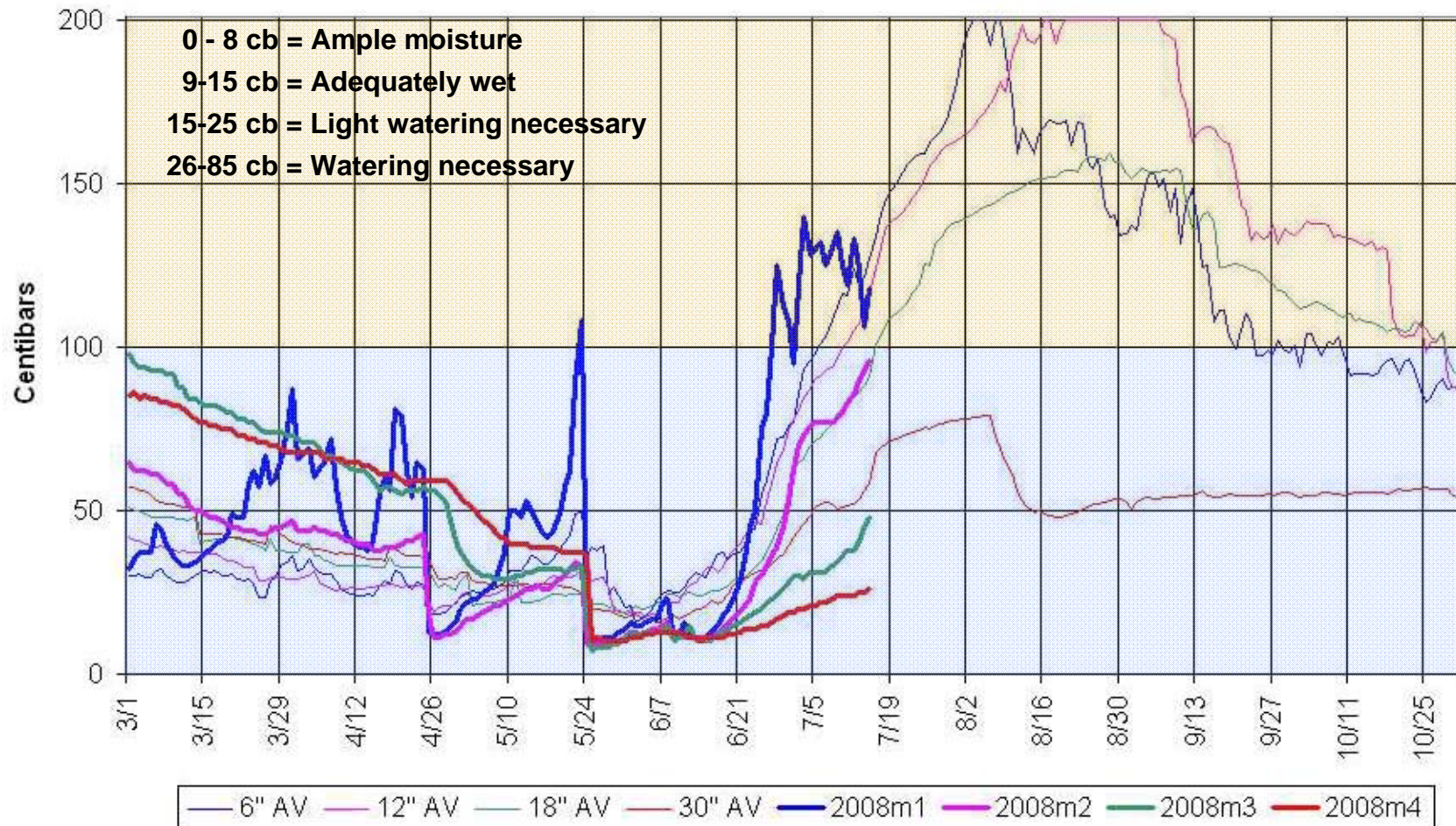
July third wettest month ... but almost half of June

187 of 395 stations average only 6 days or less of 0.01 inch precipitation

Only 30 stations receive 9 to 13 days



Great Falls Soil Moisture



- 💧 All levels moisten with precipitation late May – early June
- 💧 6 and 12 inch readings show drying quickly after the event
- 💧 All levels running more moist than 'average' for 2003-2007

VegDRI Index

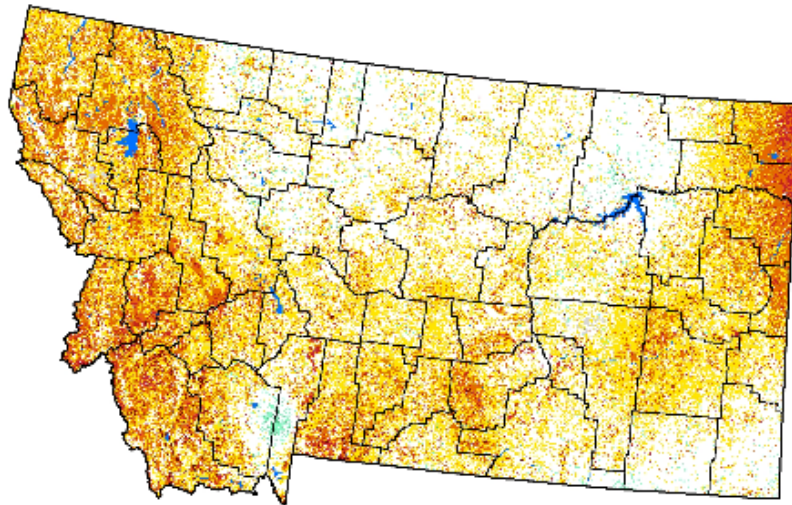
Vegetation Drought Response Index

Vegetation Drought Response Index
Complete: Montana

July 14, 2008

Vegetation Condition

Dark Red	Extreme Drought
Red	Severe Drought
Orange	Moderate Drought
Yellow	Pre-Drought
White	Near Normal
Light Green	Unusually Moist
Green	Very Moist
Dark Green	Extremely Moist
Grey	Out of Season
Blue	Water



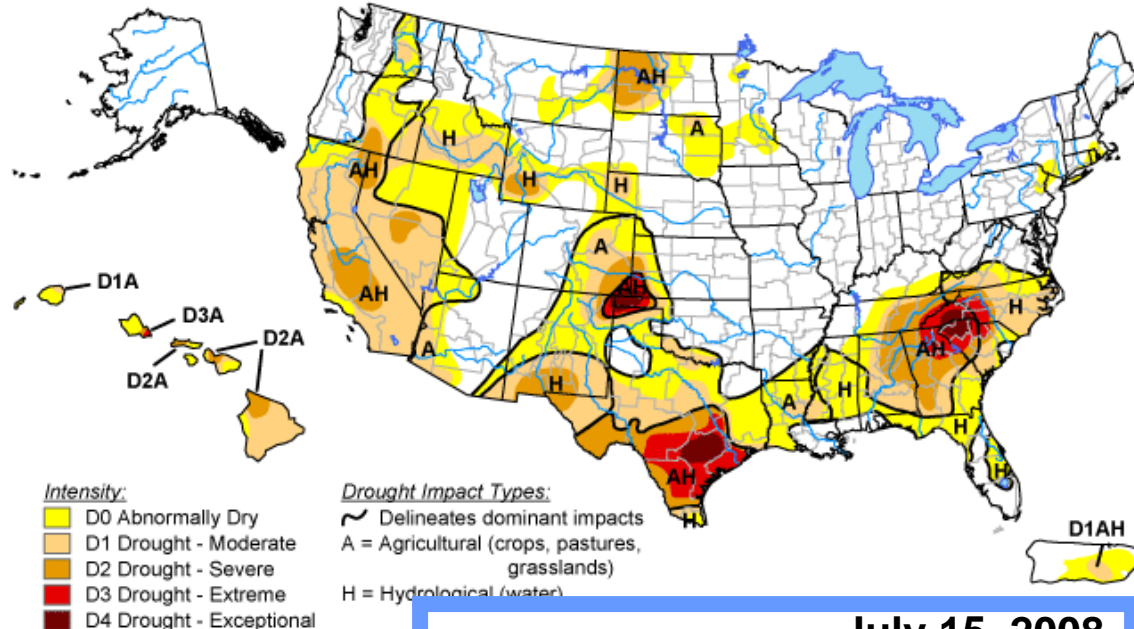
- 💧 Vegetation starting to show signs of stress in drier areas
 - *Northeast*
 - *West*
 - *Southwest*
 - *South central*
- 💧 VegDRI integrates satellite-based observations of
 - *Vegetation conditions*
 - *Climate data*
 - *Land cover/land use type*
 - *Soil characteristics*
 - *Ecological setting*
- 💧 Spatial detail 1-2 km resolution

National Drought Monitor

Released July 17, 2008

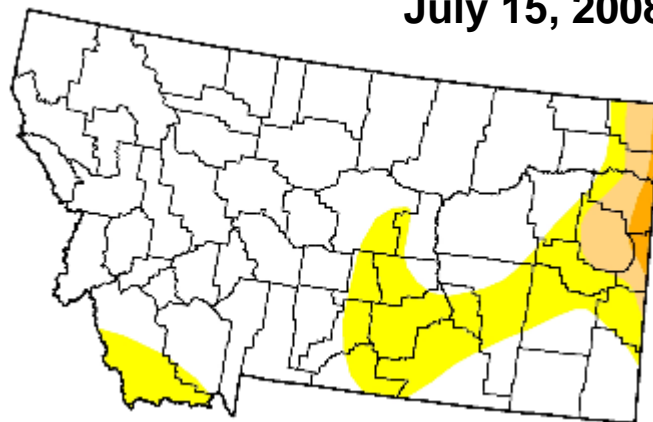
U.S. Drought Monitor

July 15, 2008
Valid 8 a.m. EDT

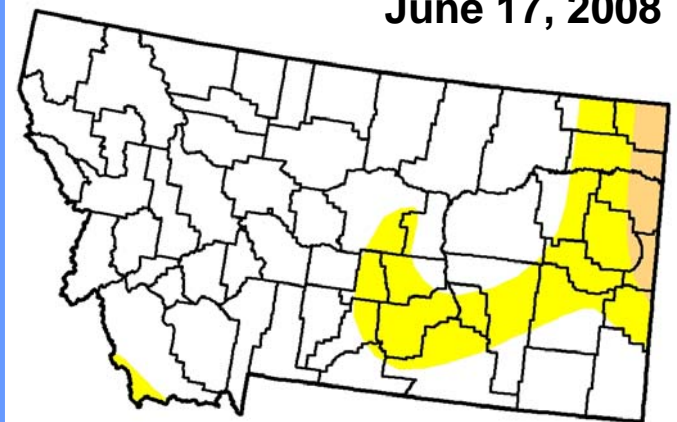


- D0 (Abnormally Dry) beginning to show in southwest and south central
- D1 (Moderate) and D2 (Severe) working into eastern counties

July 15, 2008

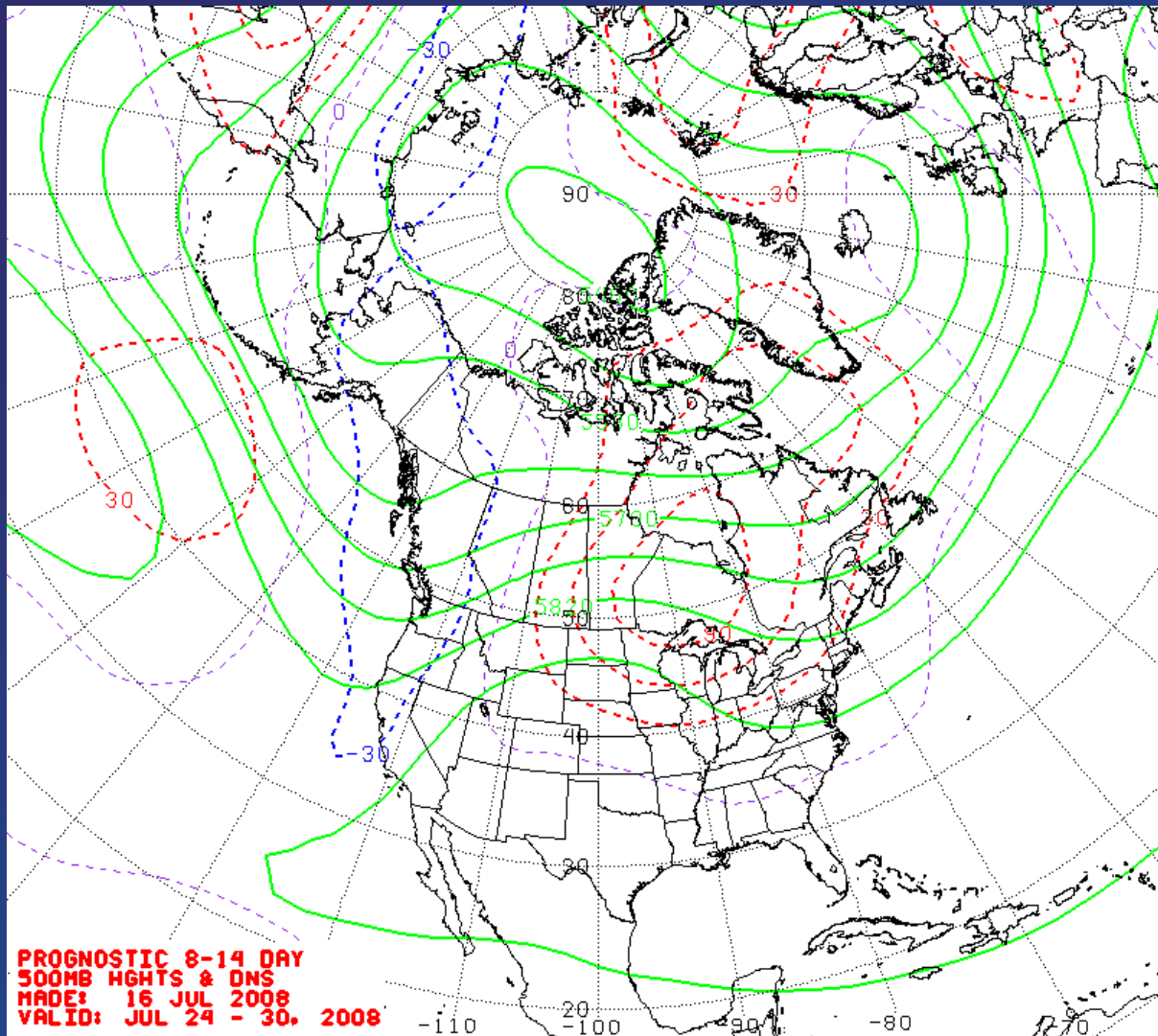


June 17, 2008



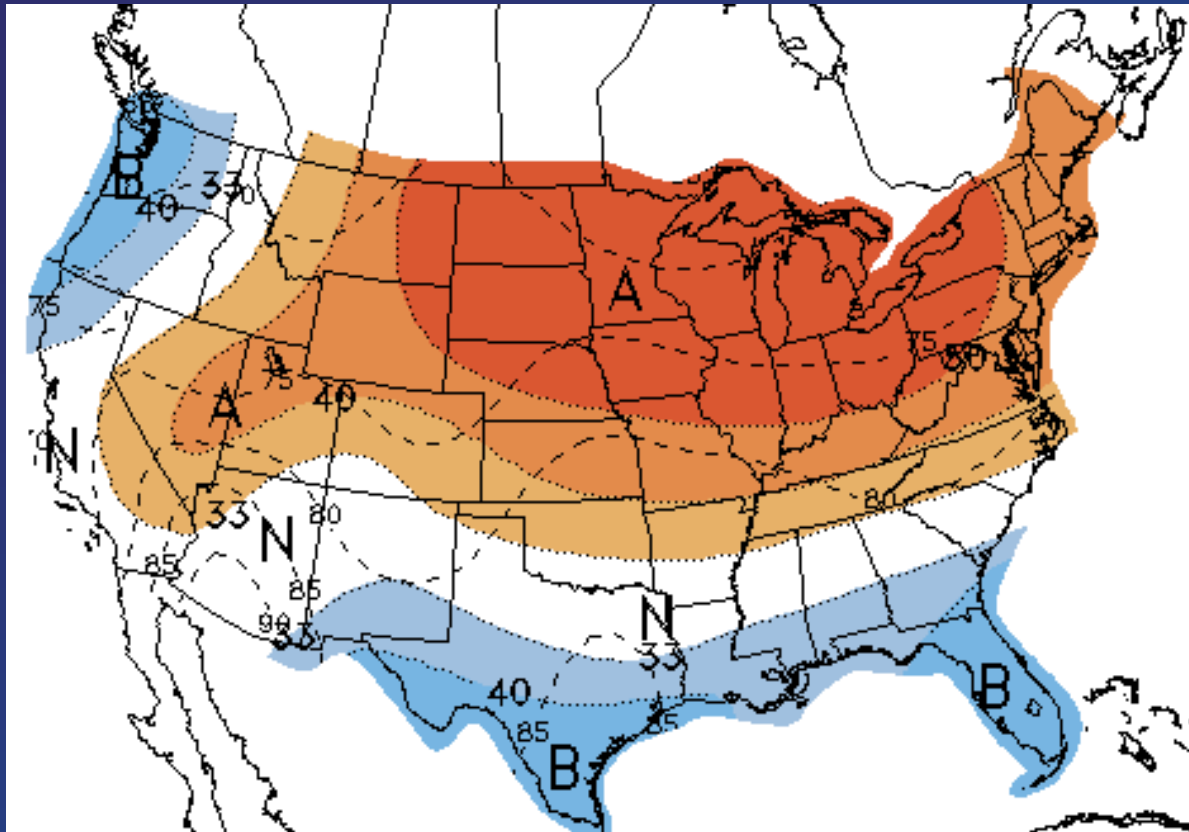
8 to 14 Day Outlook

500mb Heights and Anomalies



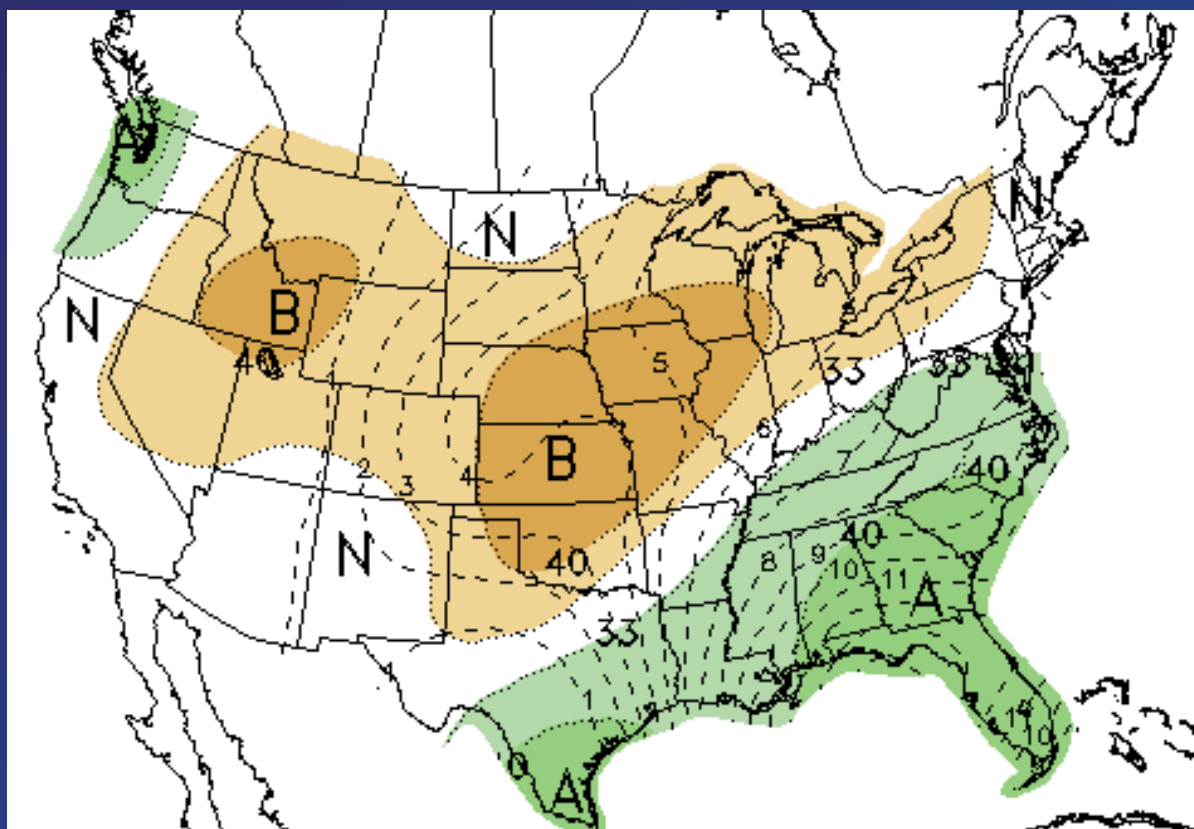
- July 24 - 30
- Montana between a high pressure ridge to the east and low pressure trough to the west

8 to 14 Day Outlook – Temperatures



- July 24 - 30
- Most of Montana has better chance for above normal temperatures
 - 33% to 40% west
 - 40% to 50% central
 - 50% to 60% east
- Averages
 - *Highs in the upper 70s and 80s*
 - *Lows in the mid 40s to mid 50s*

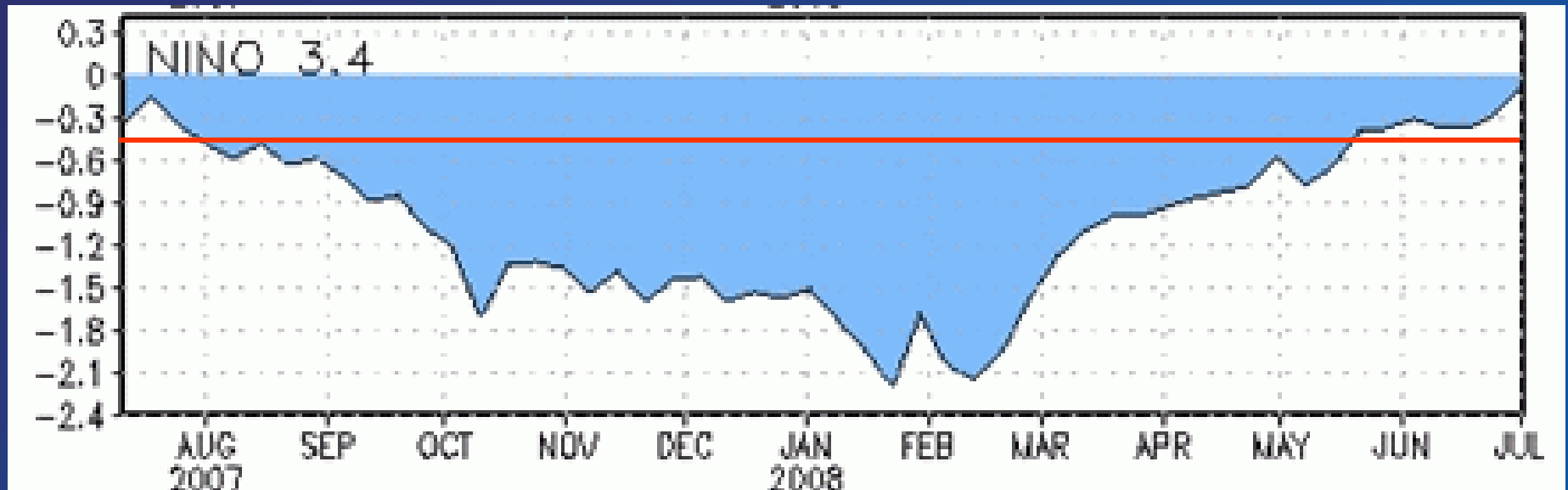
8 to 14 Day Outlook – Precipitation



- July 24 - 30
- Better chances for below normal precipitation across Montana
 - 33% to 40% chance of west, north central, central and south east
 - 40% to 50% chance southwest
- Normals
 - ~1.00 – 1.60 inches

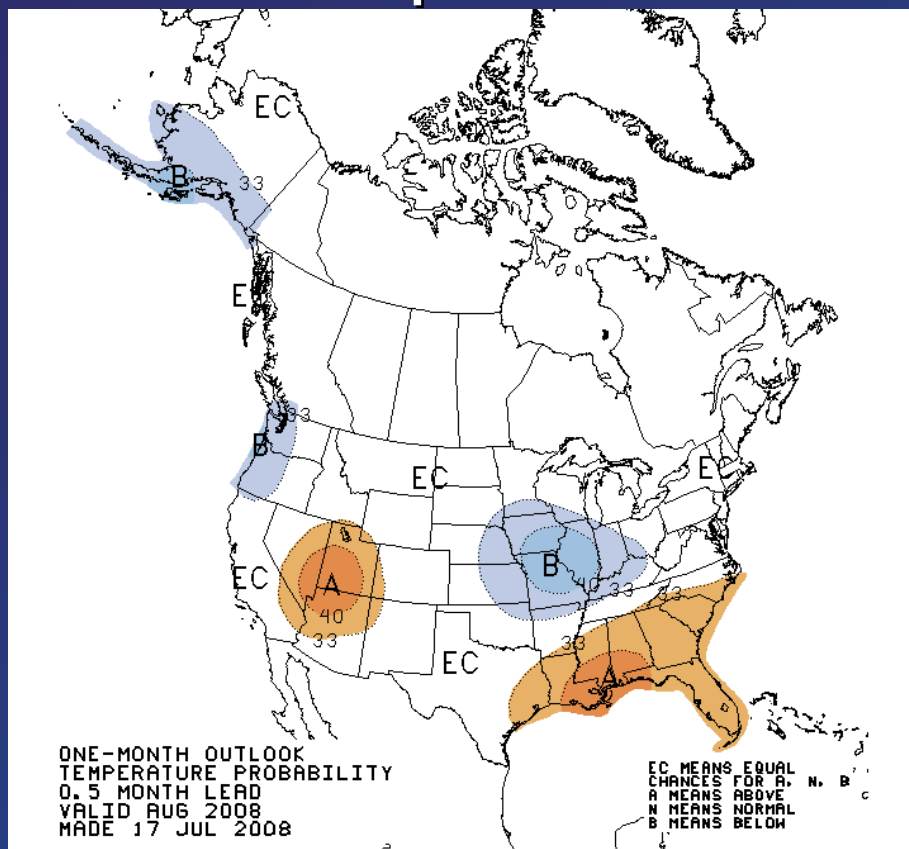
El Niño / La Niña

- 💧 ENSO-neutral conditions are expected to continue into Fall 2008



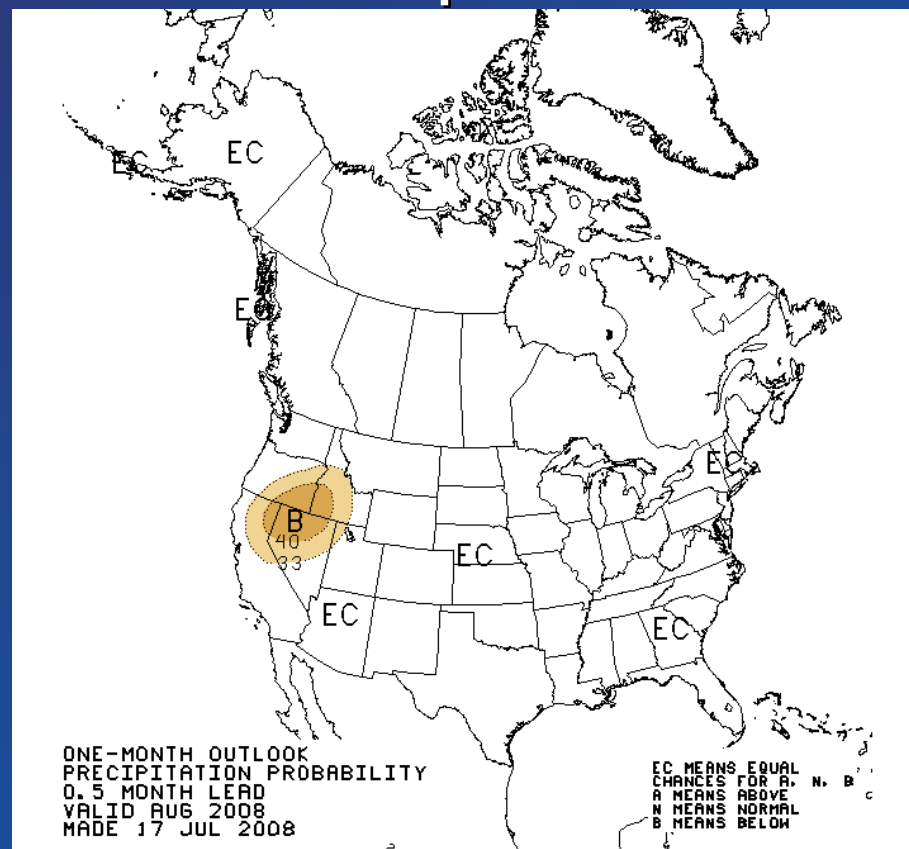
August Outlook

Temperature



- No forecast skill... equal chances temperatures will be above... below or near normal across Montana

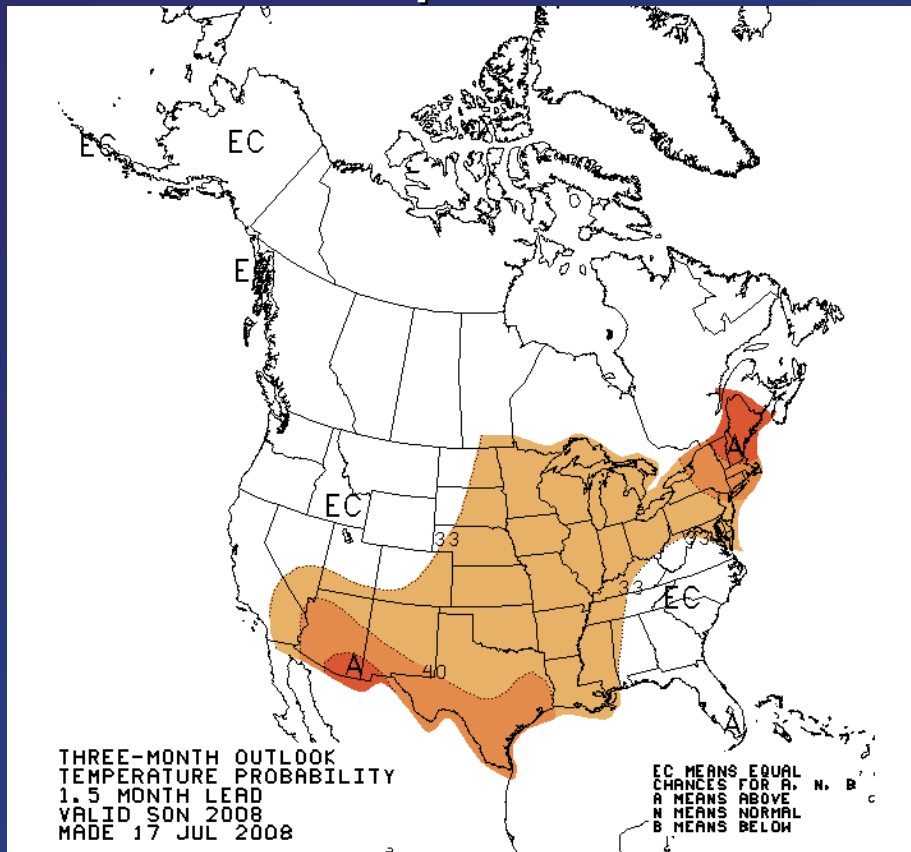
Precipitation



- No forecast skill... equal chances precipitation will be above... below or near normal across Montana

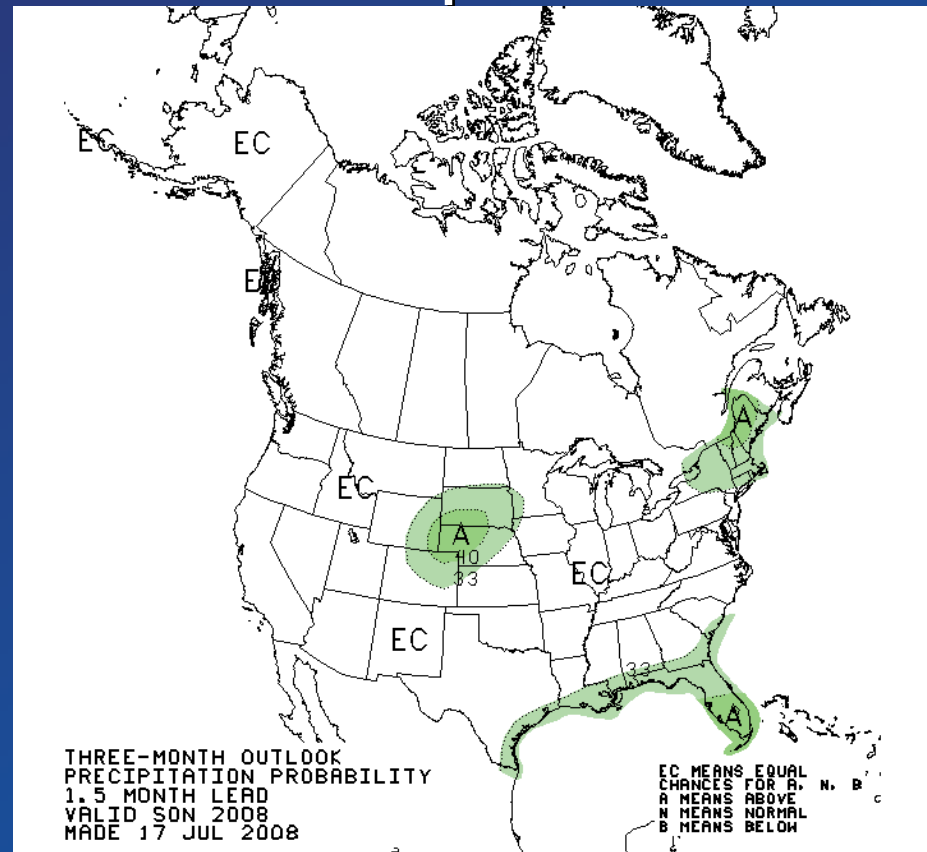
September - November Outlook

Temperature



- No forecast skill... equal chances temperatures will be above... below or near normal

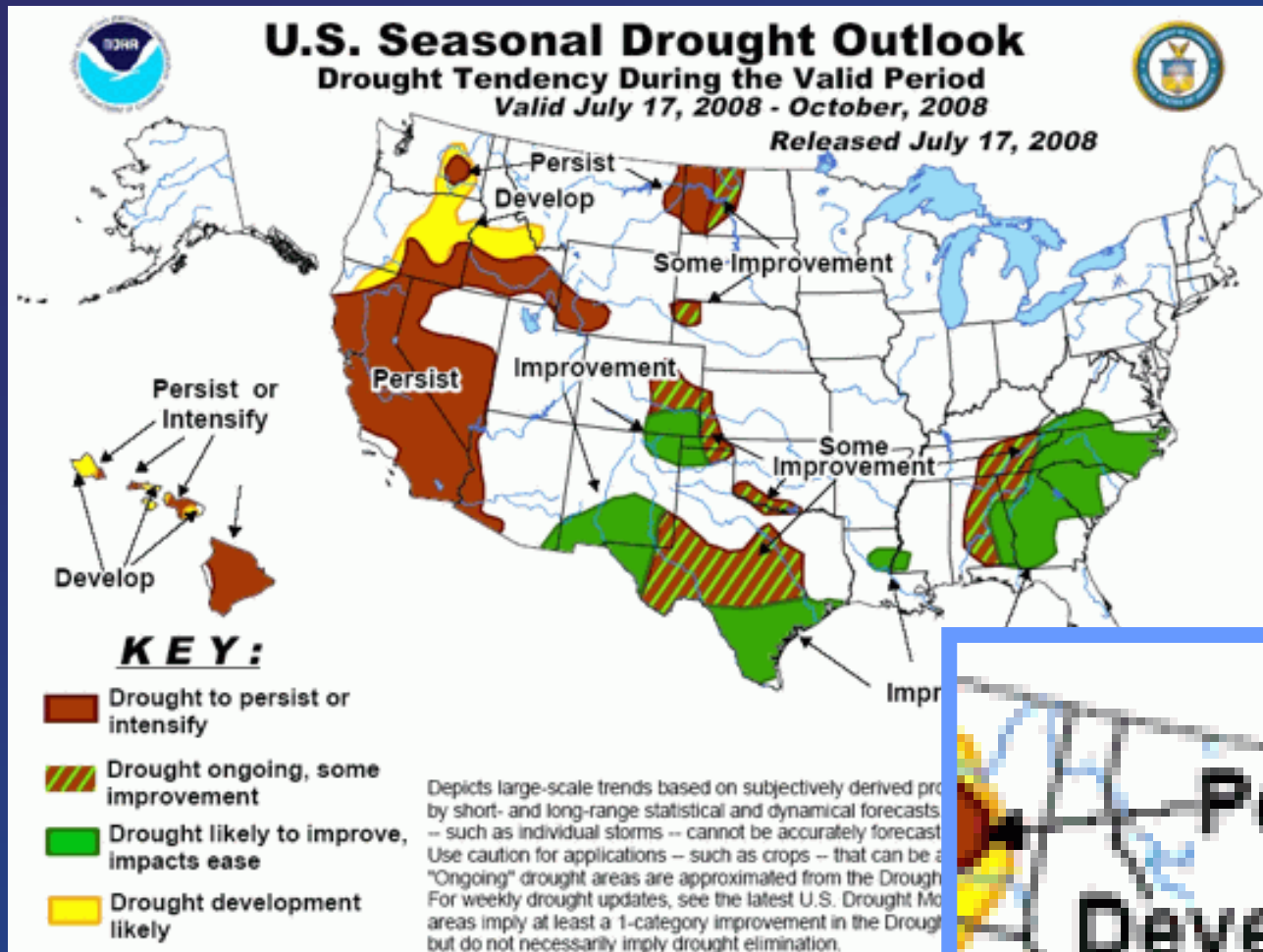
Precipitation



- No forecast skill... equal chances precipitation will be above... below or near normal

Drought Outlook through July

Issued July 17, 2008



- Starting to see some development southwest
 - Recent dry conditions plus forecast for dry conditions
- Persistence expected northeast
 - Recent dry conditions plus forecast for dry conditions



In Summary...

- 💧 **June brought near normal precipitation to much of the state**
 - *Exceptions: southwest, south central*
- 💧 **July has been below normal for most of the state so far**
 - *Especially east and southwest*
- 💧 **July is start of summer drying trend**
 - *July precipitation almost half of June precipitation*
- 💧 **Drought Outlook indicates persistence expected through much of the summer northeast with some drought development southwest**
 - *Recent dry conditions plus forecast for dry conditions*

drought.gov

NIDIS Public Community - Mozilla Firefox

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http://www.drought.gov/portal/server.pt nidis portal

MODIS 30days FFMP Basins AHPS CMS WHFS Water Reservoir Stora... TFX Graphs Login for National We... Department of Comme... AWDC

Other Drought-related Sites Drought Monitor NIDIS Public Community

NIDIS National Integrated Drought Information System drought.gov

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Navigate drought.gov

- What is NIDIS?
- Current Drought
- Forecasting
- Impacts
- Planning
- Education
- Research

Area Information

Select State... >> Go

Select Region... >> Go

Maps & Tools

>> GIS Resources

Welcome to drought.gov!

Icon - Impacts
How is the Drought Affecting Me?

Will the Drought Continue?

Where are Drought Conditions Now?

U.S. Drought Monitor

April 8, 2008
2008 Apr 8 12Z

Legend:
D0 Abnormally Dry
D1 Drought - Moderate
D2 Drought - Severe
D3 Drought - Extreme
D4 Drought - Exceptional

USDA, NOAA, and other agencies are working to help farmers and the public understand the drought conditions and the impact on the nation's water resources.

Released Thursday, April 10, 2008
Author: Rick Thaler, Climate Prediction Center, NOAA

Drought Conditions

% Area for U.S., including, AK, HI & PR
(As of 4.8.2008)

Info Source: National Drought Mitigation Center

Legend:
D0 Abnormally Dry
D1 Drought - Moderate
D2 Drought - Severe
D3 Drought - Extreme
D4 Drought - Exceptional

View Time Series - Last 12 months

What's New

- ** drought.gov - New Release! **
- Southeast Drought Workshop
- Status of Drought Early Warning Workshop - June 2008

Drought News

- Southeast drought eases, but concern remains - USATODAY.com
- Do Trees Worsen Droughts? : NPR
- NOAA - National Oceanic and Atmospheric Administration - Current Major Flooding in U.S. a Sign of Things to Come
- Los Angeles Times: More changes that help conserve water at home
- U.S. Spring Season Forecast: More Record Floods Environment News Service (ENS)

NIDIS Feature

Southeast Drought Workshop

April 29-30, 2008

weather.gov

weather.gov/billings

weather.gov/glasgow

weather.gov/missoula

weather.gov/greatfalls



Missouri River near Cascade